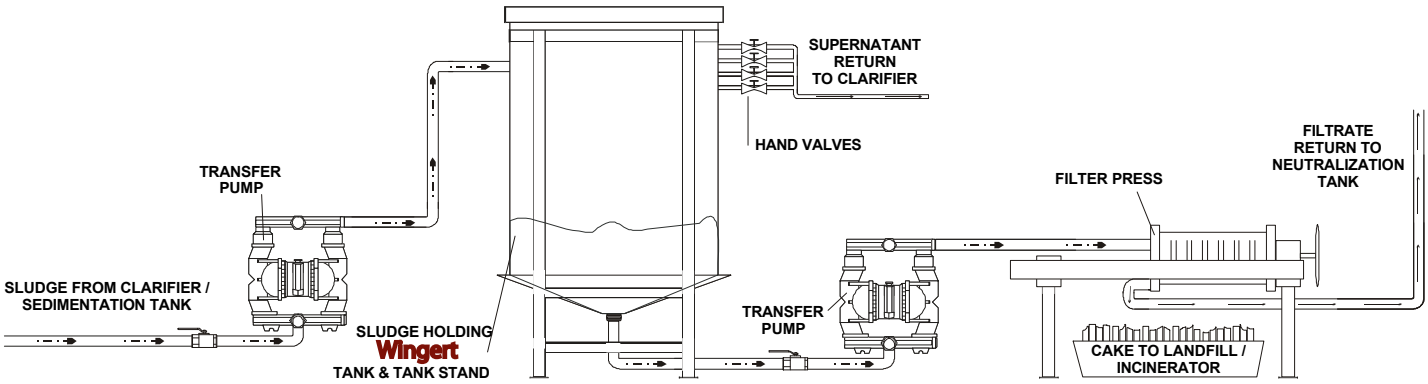
SOLID WASTE REMOVAL / SLUDGE DEWATERING

When treating wastewaters by settling or flotation, a liquid/solids separation occurs. Clean water is then discharged and the solid residuals become concentrated. In most cases, the solid residuals are still in liquid form and can be concentrated further.

Sludge dewatering is the removal of water from these residuals with the primary goal of making a concentrated solid cake. The benefits of removing water from sludge are many:

- Volume reduction -- Biological sludges contain 95% or more water even after being concentrated by gravity settling.
- Ease of handling -- It is easier and more cost effective to transport and landfill a solid brick-like material than one that has liquid consistency.
- Reduced fuel consumption -- When sludges are incinerated, it is critical to lower the moisture content as much as possible to save on fuel costs.

Filtration has become one of the most common methods of sludge dewatering. Filtration is the separation of the fluid from the solids when passed through a porous barrier. The filter medium (or septum) is the barrier that allows the liquid to pass while retaining most of the solids. It may be made from screen, cloth, paper, or a bed of solids. The liquid that passes through the filter medium is called the filtrate.



Sludge from the clarifier / sedimentation tank is pumped into the sludge holding tank where gravity allows for further separation of solids and liquid. The top liquid (called the supernatant) is returned to the clarifier / sedimentation tank and the concentrated sludge is pumped into the filter press. The filtrate is returned to the neutralization tank and dried filter cakes are collected for landfill disposal.

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